Freight Mobility Study

Summary

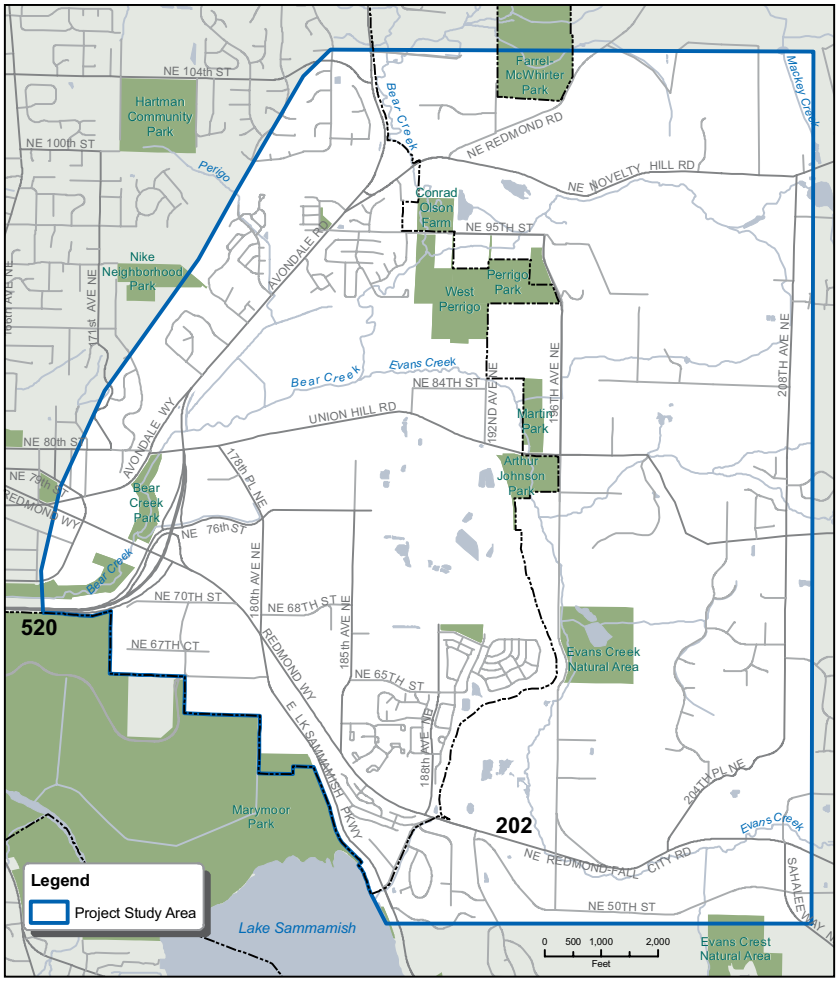
City of Redmond
WASHINGTON

December 2009

Introduction

The Redmond Comprehensive Plan calls for Transportation Master Plan (TMP) projects, programs, and services that improve freight mobility as well as all other modes of travel (see RCP TR-13). Freight mobility is a criteria for project selection in the TMP.

Originally named in the TMP's Three-Year Action Plan as the Freight and Goods Activity Study, the Freight Mobility Study identifies issues, types, and needs of goods and services movement in the City, with a focus on the Greater Southeast Redmond area.



Source: City of Redmond (2008)

The Freight Mobility Study was established using the following sources:

- 2008 and 2009 vehicle classification counts on Redmond streets
- Redmond land use and employment data
- Interviews with major manufacturing companies
- A Citywide freight mobility survey
- A stakeholder planning charrette (February 2009)
- A public open house (May 2009)
- Redmond policies, regulations, and standards

Additionally, the Freight Mobility Study looked at these aspects of the movement of goods and services in Redmond to see how current and future transportation elements are affected:

- freight users
- freight transportation network
- freight-related policies, regulations, and standards
- truck deliveries for businesses
- truck traffic volume on Redmond streets
- stakeholder concerns and needs for freight mobility

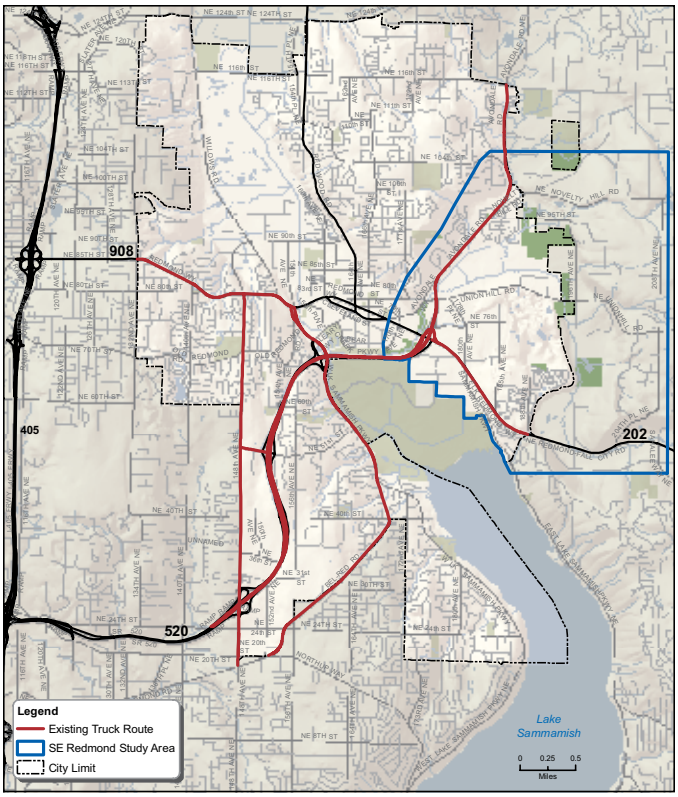
Summary of Findings

Redmond Freight Users

Redmond is home to a variety of business types and sizes, all of which use the transportation network to move goods and services. Some of these companies operate on a national or world-wide scale. While large delivery and manufacturing firms exert pressure on Redmond's transportation network in key locations, hundreds of small businesses throughout the City also depend on reliable movement of goods and services in order to thrive.

Compared to the rest of the City, Southeast Redmond has a high concentration of major businesses with substantial delivery needs. They include companies that manufacture construction equipment and materials, regional retail and grocery stores, and mail and package service centers such as UPS and USPS.

In the future, along with employment related to industrial land use, truck traffic volumes are expected to rise.



Source: City of Redmond (Municipal Code Chapter 10.76.030)

Figure 1

Freight Transportation Network

The City of Redmond's freight transportation network consists entirely of roadways, including City streets and state routes. SR 520 is Redmond's only limited-access highway. SR 520 and other streets such as Redmond Way (SR 908 and SR 202) connect Redmond with other freeways including I-405, I-5, and I-90.

A combination of principal and minor arterials constitute Redmond's nine designated truck routes (see Figure 1). Trucks passing through Redmond may only use truck routes and state highways. Trucks with Redmond origins or destinations may use any public street.

Freight-Related Policies, Regulations, and Standards

Redmond regulates truck movements on City streets and authorized truck routes through Redmond Municipal Code (RMC) 10.76. RMC 10.52.220 regulates truck parking on residential streets.

Redmond also regulates some land uses that typically employ trucks. While these regulations do not explicitly regulate the movement of trucks, they do focus on their impact. As an example, the Redmond Community Development Guide 20C.70.45-020 includes noise mitigation requirements for non-residential land use development activities adjacent to residential areas in a portion of Southeast Redmond.

Truck Deliveries for Businesses

Typical truck movement patterns to and from Redmond businesses were extracted from a freight mobility survey administered in January 2009. The survey was mailed to approximately 1,760 businesses in addition to being publicized on the City web, the Redmond Reporter, and the Chamber of Commerce newsletter. This was followed by personal telephone calls to many local businesses, encouraging business owners to participate.

Surveys were returned by about 150 businesses, 130 of which provided detailed information. Responding businesses are mostly located in three areas (see Figure 2).

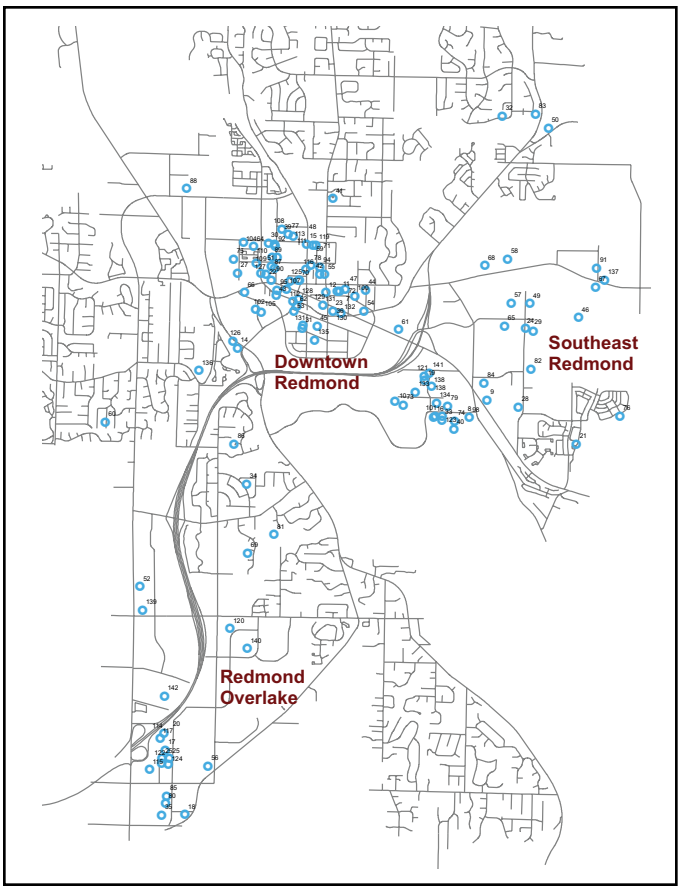


Figure 2

The following daily and hourly truck movement patterns were identified in the survey:

- Deliveries to businesses occur mostly on weekdays, with no peak day indicated.
- Deliveries typically start after 6 AM and end by 6 PM.
- The greatest percentage of deliveries occurs between 10 AM and 2 PM. This pattern does not apply to some major manufacturing companies in Southeast Redmond.
- In Southeast Redmond, deliveries of major manufacturing companies occur evenly among the three periods of time between 6 AM and 6 PM (6 AM to 10 AM, 10 AM to 2 PM, 2 PM to 6 PM)

Truck Traffic Volumes

Daily truck traffic on existing truck routes range from 410 to 1,625 AWDT (average weekday traffic). Truck traffic is significant on many Southeast Redmond streets, with high volumes on streets in Southeast Redmond that connect manufacturing companies with SR 520 and other major arterials. The intersections with high truck volumes include:

- The end of SR 520: Union Hill Road at Westbound Avondale Road
- SR 520 Westbound on-ramp at NE 76th Street and Redmond Way
- NE 76th Street at 178th Place NE
- Union Hill Road at 178th Place NE

Truck traffic at these intersections accounts for 12-23% of total AM peak volumes, 4-10% in the midday peak hour, but just 1-5% in the afternoon peak hour.

Stakeholder Concerns and Needs for Freight Mobility

Freight mobility concerns, needs, and ideas from stakeholders were collected in the first half of 2009 through interviews with representatives from major manufacturing companies, the freight mobility survey, a planning charette in February, and a public open house in May. Common themes for both system level and spot improvements included:

- **Congestion** from construction activities and roadway bottlenecks in Downtown and Southeast Redmond cause delay and direct economic loss for businesses.
- **Intersection design and operations** including signal timing, turning radii, and roundabout design need to accommodate truck movements.
- **Access and circulation** during the day on some commercial sites is difficult for large trucks and should be considered during private development site design.
- **Connections** that improve the street grid network in Southeast Redmond will help provide alternate connections for trucks, which in turn will alleviate congestion.
- **Truck parking and loading/unloading** should be considered for streets and during private development site design.
- **Unclear noise restriction** should be clarified for certain types of land use.
- **Other concerns** include the need to consider trucks in maintenance, snow removal, and emergency plans.

Recommendations

Two-Tier Truck Route System

Create a two-tier truck route system that includes "through truck routes" and "truck access routes." Arterials that directly connect with regional roadways and that currently have high truck volumes would be designated "truck access routes" and would help establish a complete and connected network for through truck traffic.

Truck Route Ordinance

If a two-tier truck route system is adopted, Redmond's current truck route ordinance should be updated. Regulating overweight and over-sized trucks should be part of the updated ordinance, while truck parking is restricted in residential neighborhoods.

Freight Policies, Regulations, and Standards

Revisions to other freight-related policies, regulations, and standards that appear in the TMP, in street design standards for trucks, and in the Redmond Community Development Guide could include:

- update the TMP to include freight policies, programs, and projects
- a street design with intent and criteria to accommodate truck movements on streets with high truck volumes
- updates to relevant land use development regulations for improved site access and circulation
- clarification of noise regulations related to truck activity
- establishing truck parking and loading/unloading zones in Downtown Redmond

Roadway Network

Congestion in Southeast Redmond could be relieved by enhancing the street network, such as improving NE 76th Street to better accommodate trucks.

Intersection Design and Operations Recommended improvements to major intersections include:

- changes to signal timing at Avondale and Union Hill Road to improve the westbound turn movement from Union Hill Road to SR 520
- enhancing the geometry of Redmond Way at 185 Avenue NE
- increasing the turning radii on NE 76 Street at 178 Place NE and on NE 70 Street at 176 Avenue NE

Construction Impacts and Communication

Better publicizing construction that impacts the transportation system can save Redmond businesses time and money. Truck drivers could then adjust their routes or schedules to avoid construction areas. A pilot communication program was recently completed using the Cleveland Street sewer replacement project as a test to improve construction notification. A frequently updated web site, email notification, variable message boards, and personal visits to businesses affected by construction are all ways to improve communication between the City and the business community that could consequently improve freight mobility.

Action Plan

Some immediate actionable items to advance freight mobility include:

- Improving signal timing at key intersections
- Considering trucks when planning street maintenance, snow removal, and emergency response
- Updating street classifications in the State of Washington Freight, Goods and Transportation System to compete for Freight Mobility Strategic Investment Board funding

For the remainder of 2009:

- Approve the long-term transportation plan for Southeast Redmond including projects that benefit freight mobility
- Incorporate roadway improvements recommended from the freight mobility study when evaluating projects for Southeast Redmond
- Consider trucks in the design for the NE 76 Street corridor

For 2010:

- Update truck route ordinance to include two-tier system and regulation of overweight and over-sized trucks
- Consider freight mobility as priority in upcoming TMP update
- Update street design standards to better accommodate trucks
- Consider truck loading/unloading zones in final design of Downtown East/West Corridor
- Expand pilot communication program to all City construction projects
- Consider trucks in design standards for parking lots
- Clarify noise ordinance as it relates to trucks

In addition, it is recommended that at some point the City consider establishing a freight mobility improvement program.

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Freight Mobility

Diversified sectors of the business community have participated in this study. They range from huge international entities to one-person small businesses; high tech companies to manufacturing companies; retail to offices; art, auto, engineering, legal, medical, restaurant, real estate, services, and many more.

The business community's participation is essential to this study. Their participation has laid out the insight and knowledge for understanding the movement and operations of Redmond's freight transportation. More importantly, the business community has shed light on innovative ideas and solutions for improving Redmond's freight transportation network.

With deep gratitude, the study team would like to thank the business community for their contribution to this study. The study team is especially grateful for the help and support from the Redmond Chamber of Commerce and Southeast Redmond area freight users.

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